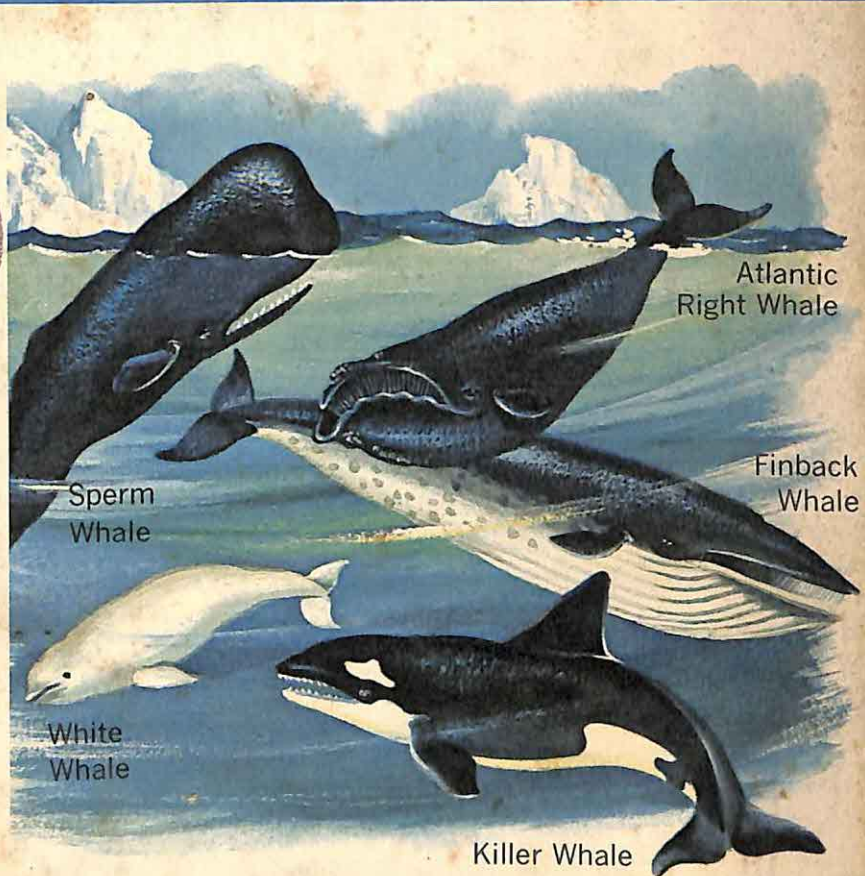
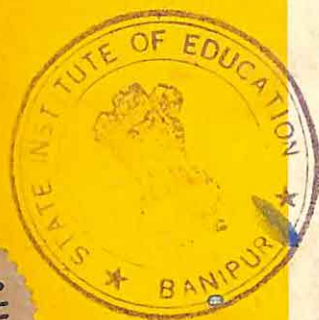




Whales



Dolphin
Science
Book 12

VAL GENDRON and
DAVID A. MCGILL

Dolphin Science Books are for children from six to nine years old. They have been carefully edited by a team of educationalists, who have made sure that the writing is clear and informative, and the subject matter and vocabulary exactly suited to the age group concerned.

The books are illustrated at every page opening with pictures and labelled diagrams in full colour.

The different kinds of **whales**, where and how they live, what they eat, and how they take care of their young.

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Dolphin Science Books
WHALES



Dolphin Science Books

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WHALES

Val Gendron and
David A. McGill

Illustrated by Bill Barss



University of London Press Limited, Warwick Lane, London E.C.4

Blue Whale

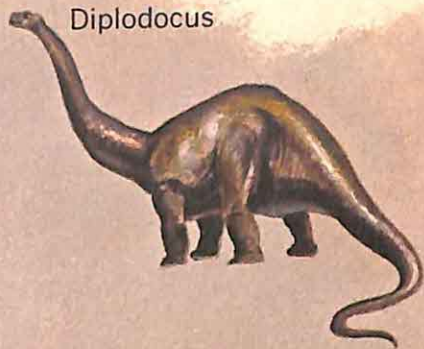


The blue whale is the largest living animal. It is the largest animal that has ever lived. An adult blue whale may be a 100 feet long and weigh 120 tons.

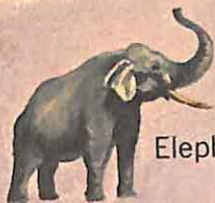
Such a whale would weigh as much as a herd of forty female Indian elephants.

Some giant dinosaurs that lived long ago weighed about forty tons. A blue whale is three times bigger than those dinosaurs.

Diplodocus



Elephant



Horse



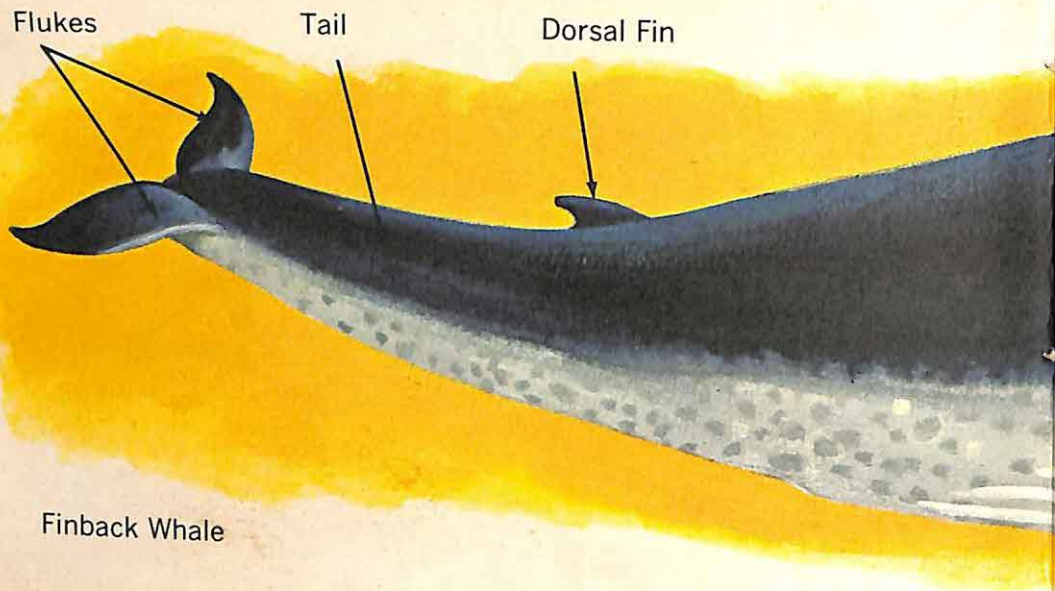
Man



See how much larger the blue whale is compared with man and the other animals.

With large land animals, the legs must support and move the weight of the body.

It is different with animals that live in the water. The weight does not have to be supported on legs. It is held up by the water round and under the body.

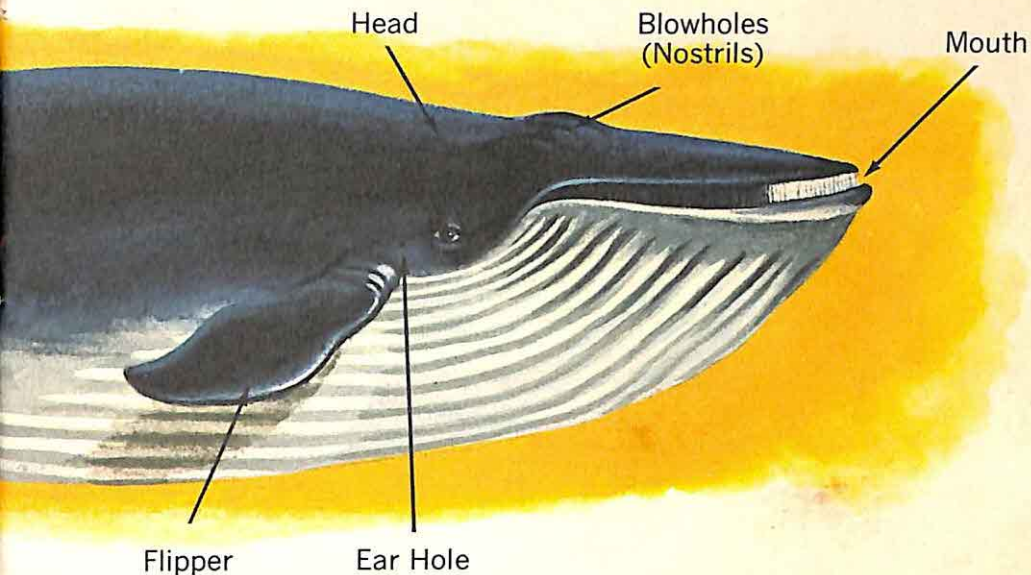


Finback Whale

Whales are divided into two groups, toothed whales and whalebone whales. All whales, however, are alike in many ways.

A whale is beautifully streamlined, smooth and curved from head to tail. Its great body has powerful swimming muscles. These muscles and the streamlining allow a whale to move quickly through the water.

The head may be about a quarter of the whole length of the animal. The mouth is huge.



There are no shoulders or neck that can be seen. The body tapers to the broad and powerful tail. The ends of the tail are called flukes.

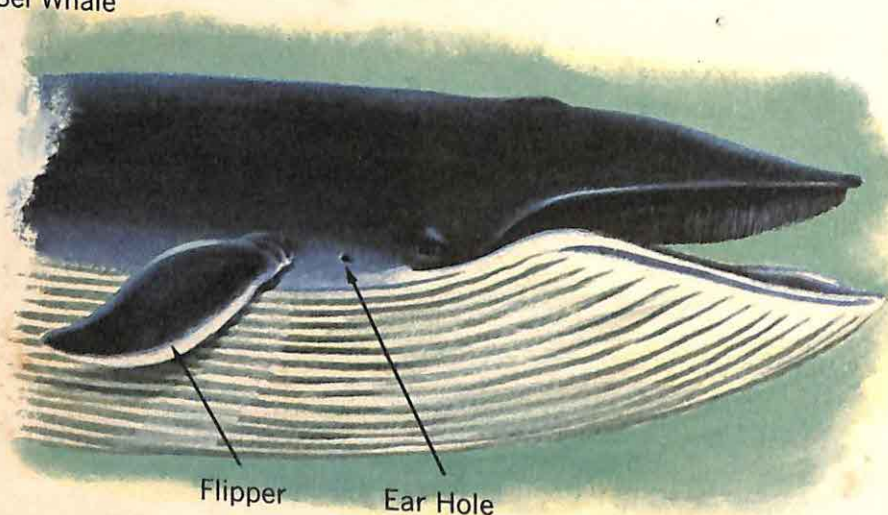
The eyes are set on each side of the great head. Whales probably have no sense of smell, but they have nostrils on top of their heads, which are called blowholes. These have flaps to keep the water out. A whale cannot breathe through its mouth. Therefore it can feed in the ocean without getting water in its lungs.

Whales do not have ears on the outside of their bodies, but they can hear very well. The whale has a tiny hole on each side of its head. These are the outside openings of the ears.

Behind the head are two flippers. The flippers look like fins. They help the whale to balance and to steer.

Some whales have a fin on their backs which is called a dorsal fin. This fin works like a ship's rudder and helps the whale to swim in a straight line.

Sei Whale





Although whales live in the sea as fish do, and look and behave rather like fish, they are not fish. Fishes are cold-blooded animals; so are snakes and alligators. A whale is a mammal. A mammal is an animal that is warm-blooded, that breathes air, has some hair, and feeds its young with its milk. People and dogs and mice are mammals.

We say a fish is cold-blooded because the temperature of its body is about the same as that of the water it is in. But whales are warm-blooded, and their body heat stays about the same in warm water or cold water.

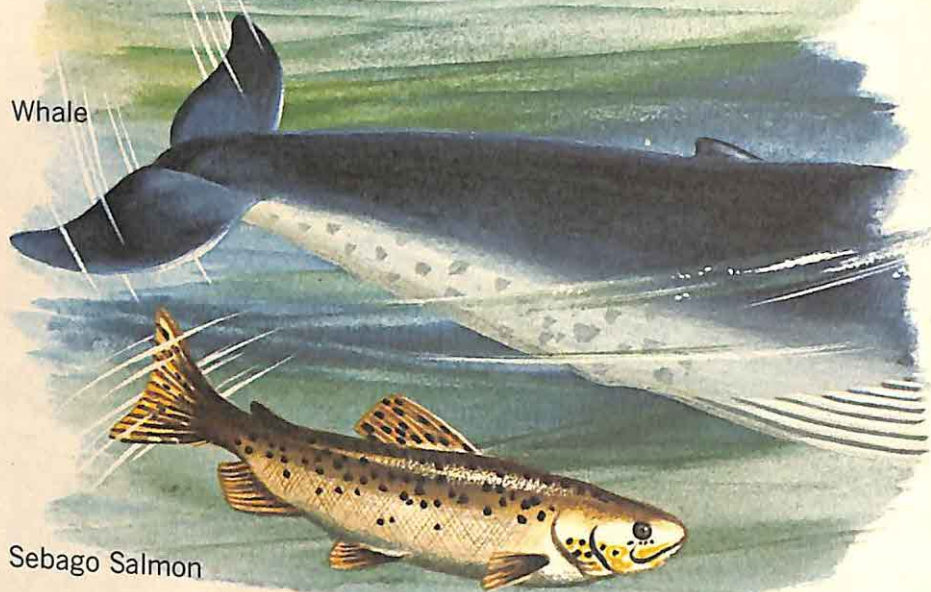
Whales' bodies are covered with layers of fat called blubber. In some whales it may be twenty inches thick. Whales give the Eskimos food, oil for heat and light, and many other things.





Whales spend a great part of their lives in the polar seas, where the water is very cold and icy. They dive very deep in the sea. Some whales dive as deep as 3,000 feet, more than half a mile. Without their coats of blubber whales could not live in these low temperatures.

Whale



Sebago Salmon

Another way in which whales are different from fish is that a fish's tail is set up and down. The fish moves it from side to side to swim.

In whales, the tail is set crossways. They swim by moving it up and down. Though most whales swim more slowly, some whales can move through the water at thirty-five miles an hour.

Because whales are mammals, they breathe air. They would die without it. Therefore a whale must come to the surface to breathe.

If a whale washes ashore, it cannot live. Though it can breathe, it cannot move and its great weight crushes its own lungs.

Pilot whales that have washed ashore.



A whale can take a breath that may last as long as an hour or more under water. Then it must come to the surface again to let out the stale air and take another breath.

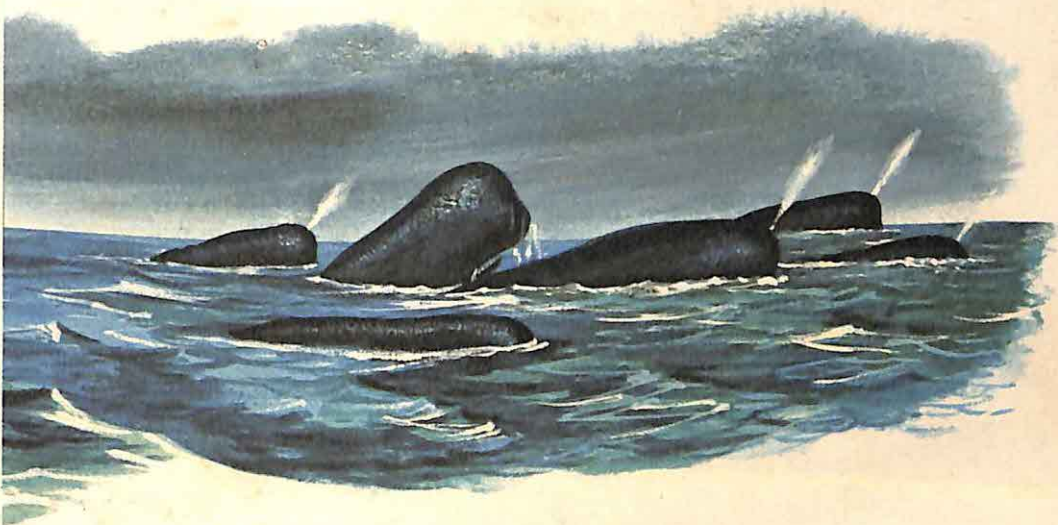
When a whale lets out its breath, it is said to "blow". The blow forms a spray that can be seen a long way away. "There she blows!" was for a long time the cry of the look-outs among whale hunters.



At first, it was thought that whales spouted water when they came to the surface. Later, the belief was that when whales breathed out, their warm breath struck the cold air and formed a cloud.

Now it is thought that there are tiny drops of an oily liquid let out with the breath. This oily liquid is found in the lungs of whales.

Some scientists now believe that this may explain why the blow can be seen.





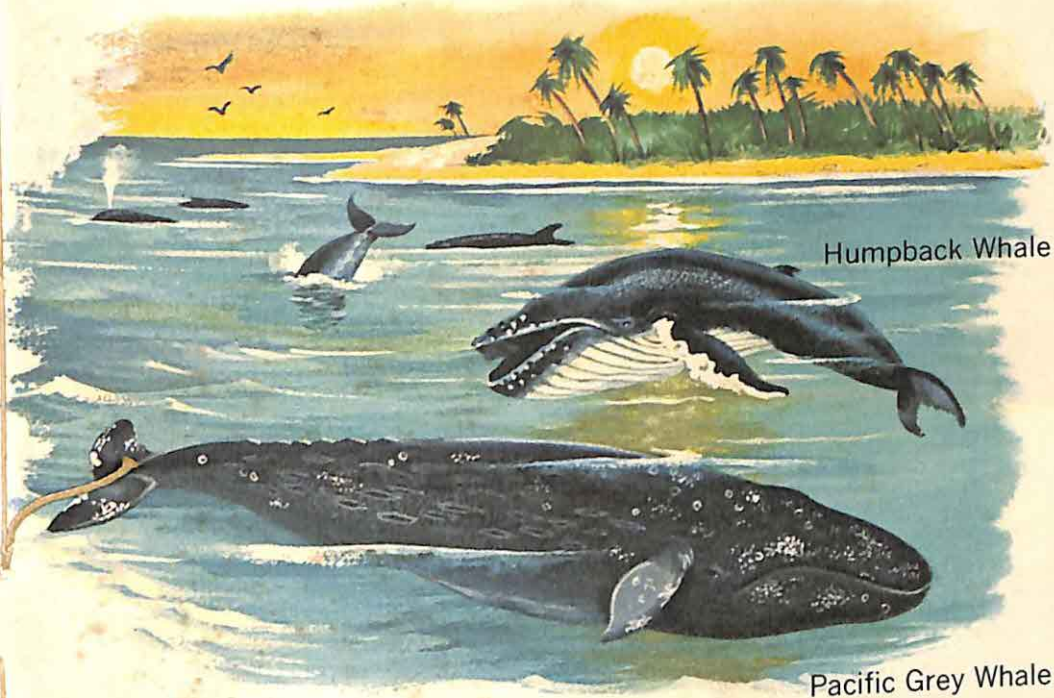
Humpback Whale

Finback Whale

Whales are found all over the world. They live in all the oceans. However, they spend most of their time in the polar seas, which are rich in the food they like.

North Pole or South Pole whales may swim in both the Atlantic and Pacific, but they do not travel between the Arctic and Antarctic regions.

Whales from the North Pole and whales from the South Pole are not known ever to mate with each other, although they are of the same kind.



Humpback Whale

Pacific Grey Whale

In the late autumn, the great whale herds in the polar seas break up. The whales pair off.

The male and the female whales swim slowly into warmer waters, at a speed of twelve to fifteen miles an hour. They do not seem to eat much during this period of travel. Scientists believe that the whales' blubber may be a source of food at this time.

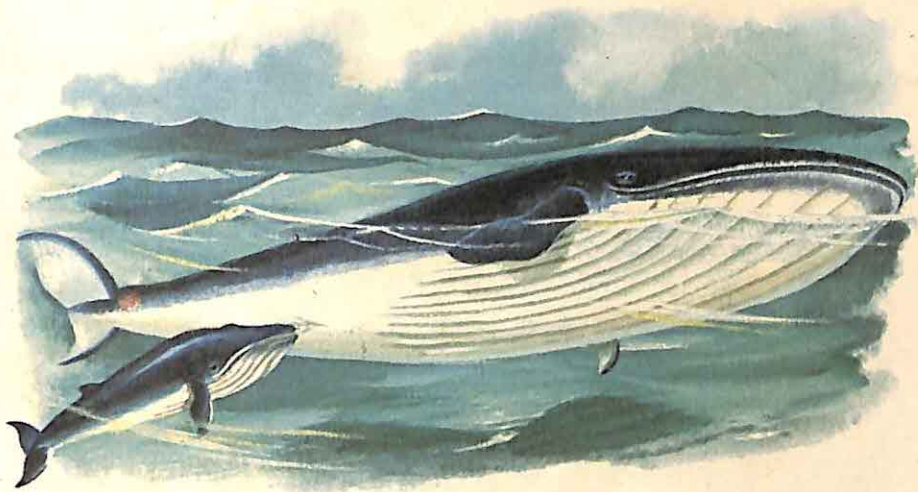
Humpback Whale



When the whales are again in warm water the next year, the baby whale is born. It is born with very little blubber. If it was born in cold water, it would freeze to death.

A baby whale, or calf, may be twenty-three feet long at birth and weigh from two and a half to three tons—about as much as a very large car.

Whales grow very quickly. A baby whale gains as much as 200 pounds a day.



The baby is fed with the mother whale's milk. She floats on her side, and the calf snuggles beside her.

A mother whale will have from six to fifteen calves during her lifetime.

Very slowly, the family swims back to the polar seas. Their whole journey, both ways, may take about seven months. By that time the baby whale is big enough to find its own food. Whales are about full-sized at four or five years old.

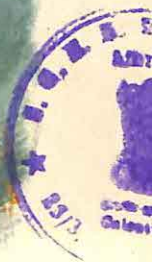
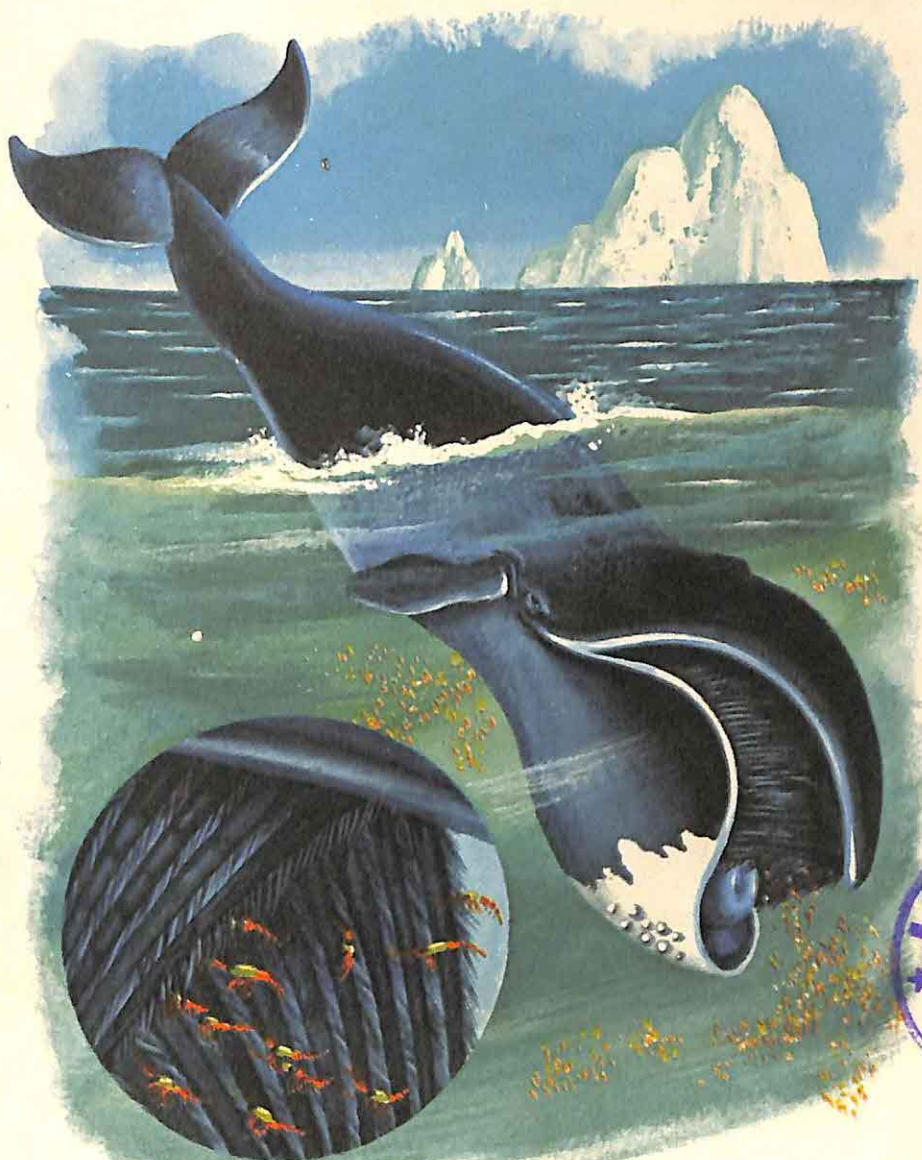
How to tell the age of a whale had puzzled scientists for a long time. They could tell the age of a fish by counting the rings of growth on its scales. But whales do not have scales.

Then it was discovered that there is a waxy plug in the eardrum of whales. This plug shows a series of layers, two for each year. From this scientists learned that whales do not live long. Forty years is a great age for a whale. Most whales live twenty to twenty-five years.

The whales called toothed whales have regular teeth. Whalebone, or baleen, whales do not have teeth. They have blade-shaped plates of whalebone, or baleen, that are attached to the upper jaws. These plates may be as long as fourteen feet.

When the whale lowers its jaws, a huge bag is formed. At the same time, the plates hang down to form a sieve that traps the tiny animals on which the whale feeds.

(Right) Greenland right whale trapping tiny animals in baleen.
(Left) Close-up of krill trapped in baleen.

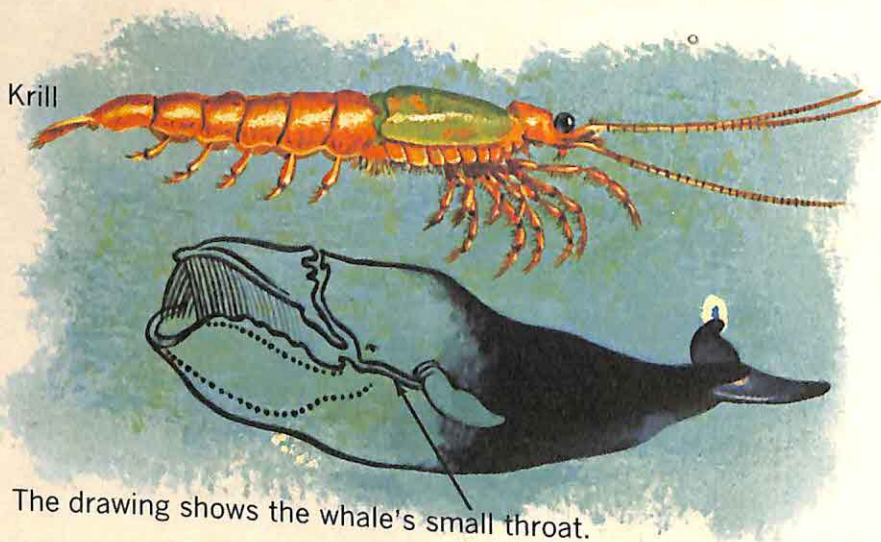


U.S. N. S. V. GREENLAND

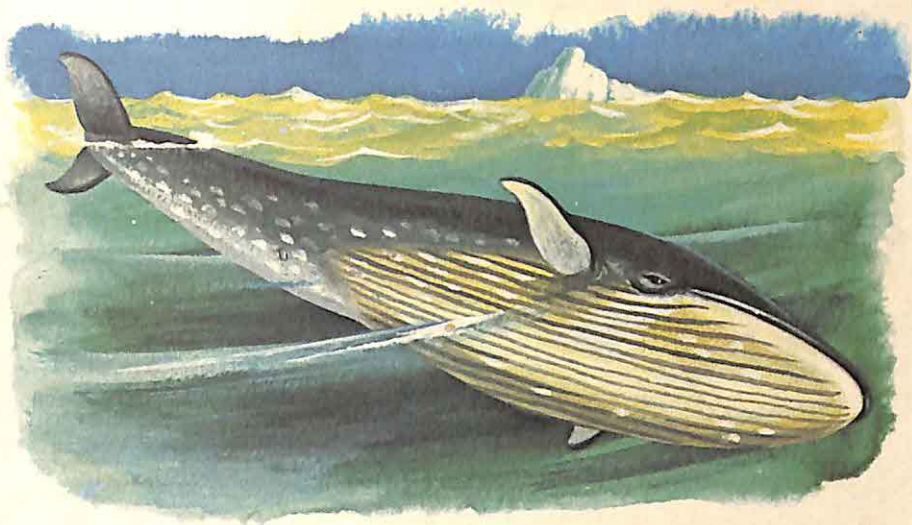
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Chief of these animals is krill, a small bright red, shrimp-like animal about an inch and a half long. Immense numbers of krill live in the waters of the Antarctic region, off the southern coast of Africa, around Alaska, and near north-eastern Asia.

A whalebone whale must live on these small animals because its throat is only a few inches across. But the biggest adult whale eats about two or three tons of krill a day.

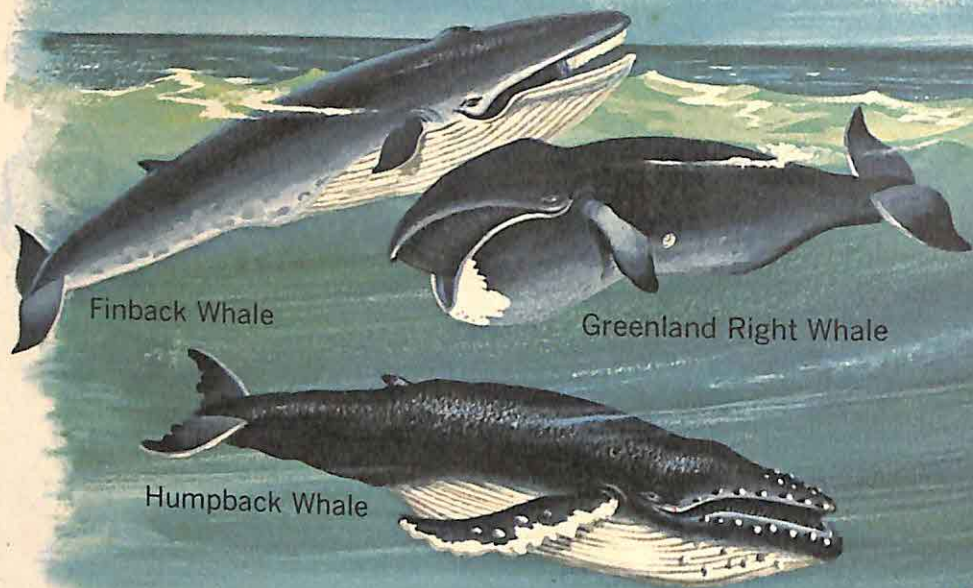


The drawing shows the whale's small throat.



Among whalebone whales, the blue whale is the largest—and the largest of all animals. Whalers call it the "sulphur bottom", because tiny plants called diatoms sometimes live on its underside, giving it a yellow colour.

The blue whale was not hunted until modern times because the long trip south and the cold water, and also the size of the animal, made hunting difficult and dangerous. But it is now killed, mainly for its twenty tons of oil.



Finback Whale

Greenland Right Whale

Humpback Whale

The finback whale is known as the greyhound of the sea, because it is the fastest whale. It grows to about eighty feet long.

The humpback whale has very long flippers. It is very playful and humps its back in diving. This is how it got its name.



The Greenland whale has a huge mouth, which gives it the biggest sieve of all whales. It used to be hunted for this valuable whalebone, and so nowadays there are not very many Greenland whales left.

Some of the other whalebone whales are the Pacific grey whales, Atlantic right whales, pygmy whales and sei whales.

Sperm whale fighting with giant squid.



Toothed whales have regular teeth. They feed on cuttlefish, giant squid and fish.

The sperm whale is one of the best known toothed whales. A large part of its head is filled with the finest whale oil. With the oil is a waxy solid, spermaceti, used in making candles.

Ivory is taken from the teeth of the sperm whale. Also a material called ambergris is sometimes found inside sperm whales. Ambergris is used in making good perfumes.



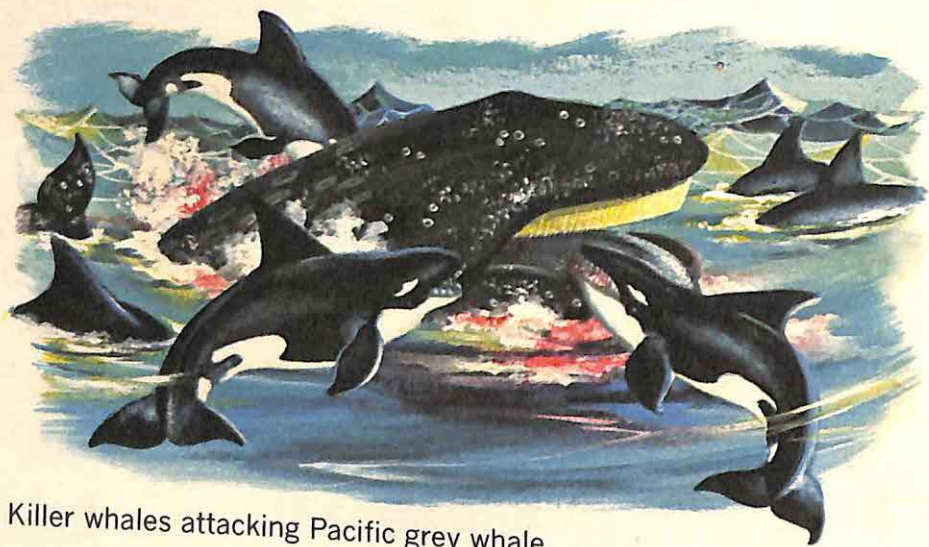
The many different porpoises and dolphins are also members of the toothed whale group. Some of them are playful, and others are deadly.

These intelligent animals seem to "talk" to one another, using squeaks, groans and grunts. They also send sounds under water towards such objects as food, ships or enemy animals. These sounds "bounce" off the object back to the dolphin or porpoise. This echo tells the dolphin or porpoise how far from the object it is.

One kind of dolphin is the killer whale, the most fearful toothed whale. It feeds on seals, birds and other whales. Killer whales sometimes hunt together in packs, and attack even the giant blue whale.

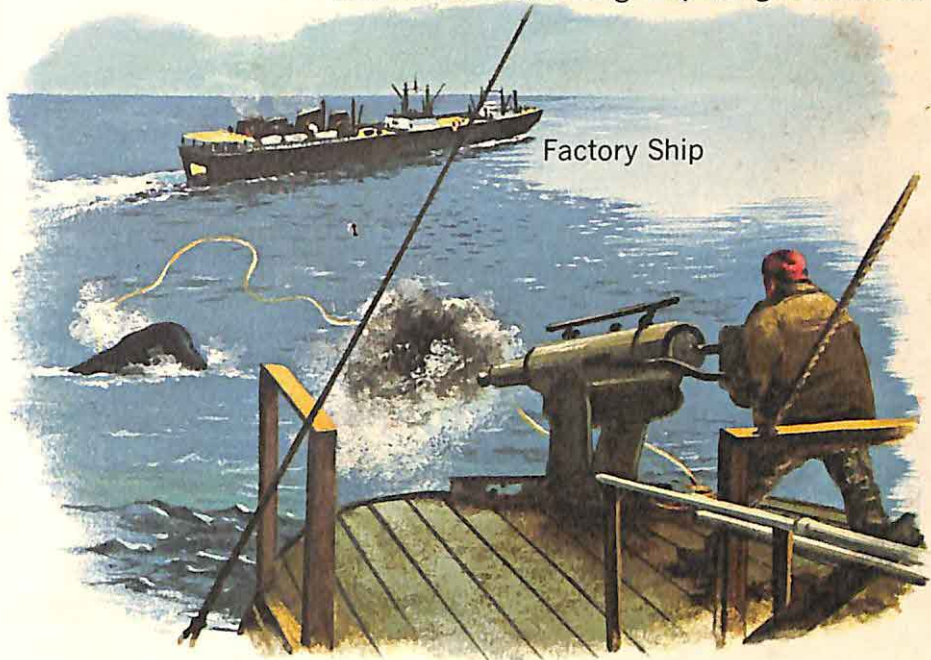
The narwhal does not look like any other dolphin or any other whale. From its jaw grows an ivory tusk that may be as long as nine feet.

Other kinds of toothed whales include the white whale, the bottle-nosed whale, and the susu.



Whale hunter shooting harpoon gun at whale.

Factory Ship



Because of their size and speed, whales have few enemies besides man.

Whaling was once very dangerous, but new harpoon guns and factory ships have made it safer. The main purpose of the hunt is to get whale oil. It is used for food, lamp oil, in making some kinds of margarine, and for oiling very fine instruments like watches.

Bottle-nosed Whale



Susu

Narwhal

Whalebone, meat, teeth and skin are also used. Even the bones are ground into fertilizer or used for bone flour.

Now there are laws that limit the hunting of whales. The laws protect mother whales and their babies and young whales. Unless these laws are obeyed, man may destroy this largest of all animals.

Things you can do

Visit a natural history museum. Most natural history museums will have a skeleton of some whale for you to see. Examine the skeleton closely. Compare the skeleton of the whale with the skeletons of other mammals in the museum.

Count the number of neck bones which the whale and the other mammals have. Although the size of the bones is different, the whale and the other mammals all have seven neck bones. The huge whale, the tall giraffe and the tiny mouse all have the same number of neck bones.

Examine the bones in the front legs of the whale. Compare them with the bones in the front legs of other mammals. You will find that the bones are all similar, even though a living whale's front legs look like flippers.

See how tiny the bones of the whale's back legs are. Although most mammals have two back legs, the whale's back legs are so small that the bones have almost disappeared and the back legs cannot be seen at all on a living whale.

Compare the whale and the fish. Although whales look and behave rather like fish, they are not fish. Make a list of the differences between whales and fish. Here are some differences to start with. The whale is warm-blooded, while the fish is cold-blooded. The whale uses lungs to breathe, while the fish uses gills to breathe. A baby whale is born alive and feeds on its mother's milk. Most baby fish are born from eggs which the mother fish has laid in the water. Only one or two baby whales are born at one time, while many baby fish are born at one time. The skin of most fish is covered with scales, while the whale's skin has no scales.

Read more about ambergris. The encyclopaedia will tell you more about the ambergris that is sometimes found in a sperm whale. Sometimes ambergris is washed up on the beaches.

Ambergris is usually coloured yellow, grey or black, and it is very smelly. If you find some on the beach, it is like finding treasure, because ambergris is worth a great deal of money.

Words younger children may need help with

(Numbers refer to page on which the word first appears)

- | | | |
|----------------|---------------|---------------|
| 4 dinosaurs | eardrum | 25 valuable |
| 6 beautifully | series | pygmy |
| streamlined | regular | sei |
| muscles | baleen | 26 cuttlefish |
| 7 tapers | blade-shaped | squid |
| flukes | sieve | sperm |
| nostrils | 22 krill | spermaceti |
| 8 dorsal | shrimp-like | ivory |
| 9 cold-blooded | southern | material |
| alligators | Africa | ambergris |
| warm-blooded | Alaska | 27 porpoises |
| 10 temperature | north-eastern | dolphins |
| blubber | Asia | intelligent |
| 11 polar | 23 sulphur | 28 narwhal |
| 15 scientists | diatoms | bottle-nosed |
| 16 Atlantic | modern | susu |
| Pacific | difficult | 29 harpoon |
| Arctic | dangerous | factory |
| Antarctic | 24 finback | margarine |
| regions | greyhound | instruments |
| 20 puzzled | humpback | 30 fertilizer |
| discovered | | |

Dolphin Science Books

- 1 **Ants** Charles A. Schoenknecht
- 2 **Magnets** Edward Victor
- 3 **Space** Marian Tellander
- 4 **Your Body** Robert J. R. Follett
- 5 **Machines** Edward Victor
- 6 **Plants with Seeds** Dorothy Wood
- 7 **Rocks and Minerals** Lou Williams Page
- 8 **Sound** Charles D. Neal
- 9 **Air** Edna Mitchell Preston
- 10 **Frogs and Toads**
Charles A. Schoenknecht
- 11 **Mammals** Esther K. Meeks
- 12 **Whales** Val Gendron and David A. McGill

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